



Ash Handling for Biomass Systems

Typical Applications

- » Pellet Plants
- » OSB / MDF Plants
- » Particleboard Plants
- » Sawmills & Dry Kilns
- » Power Generation
- » Combined Heat & Power
- » District Heating
- » Hot Gas Generation for Direct Dryers
- » Thermal Oil Heating
- » Steam Generation

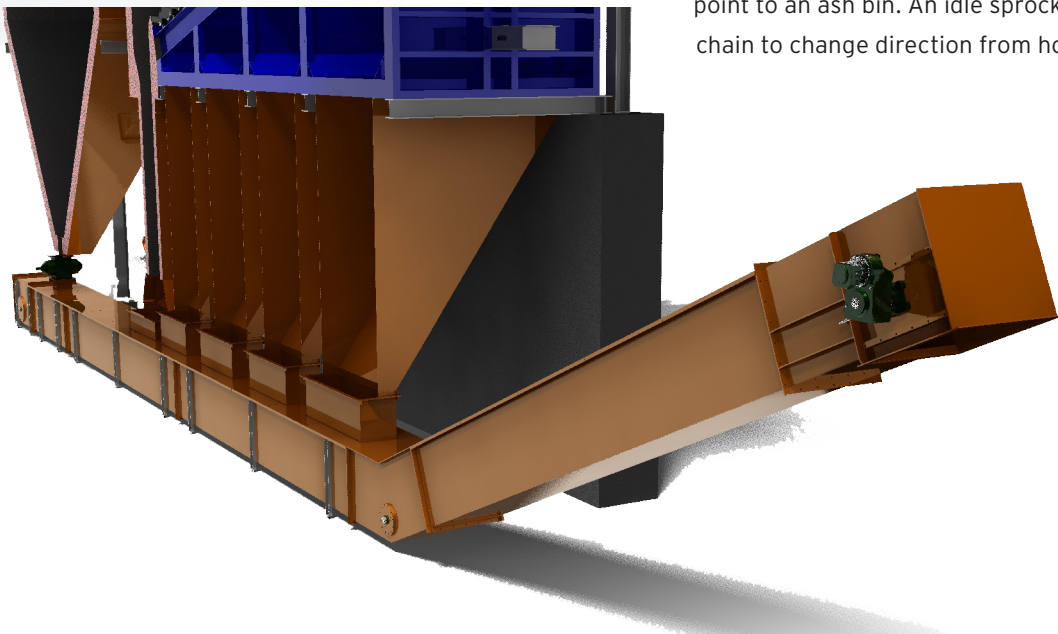
A clean process and emission controls are vital in any modern biomass combustion system. We integrate our systems with the best designs for controlling emissions and maintaining a clean facility.

Wet Submerged Ash Conveyor

The *Submerged Ash Conveyor* (FIG 8.1) collects ash from under a wood fired or biomass fired energy system. The water level is controlled by a float switch and in a separate container that is connected via a bottom pipe to the conveyor to keep the float clean. The float switch activates a solenoid valve for makeup water to fill the conveyor and maintain water level. The bottom of the ash hoppers are placed into the water of the conveyor to give the energy system an airlock as the energy system is operated under negative pressure.

The submerged ash conveyor utilizes a bottom drag chain design and comes complete with gear box drive and motor. The ash conveyor drag chain and flights pull wet ash along the bottom of the conveyor and the chain and flights return on the top. The submerged ash conveyor is seal welded and has a tail end sprocket and drive shaft with chain sprockets at the discharge end. There is an incline of the conveyor to remove surface water from the ash and to allow for a discharge point to an ash bin. An idle sprocket is included to allow the drag chain to change direction from horizontal to incline.

FIG 8.1 Wet Submerged Ash Conveyor



... Ash Handling for Biomass Systems

FIG 8.3 Water Cooled Ash Screw

Water Cooled Ash Screw (FIG 8.3)

This design provides a way to transport high temperature ash from a wood fired system or biomass fired system without damaging the metal of the conveyor. The ash conveyor includes a jacketed housing (trough) for an ash screw to be cooled with water. In addition the shaft of the ash screw is also cooled with circulated water in a closed water cooled loop. Water first travels through a rotary union into the shaft of the screw and then exits the opposite end.

Water also enters the jacketed screw housing (trough) and exits the opposite end of the housing. A single water connection is brought to the ash inlet end of the conveyor and then the water line is split and connected separately to the screw shaft and the screw housing (trough). At the discharge end of the conveyor, the hot water is combined together again and goes through a cooling radiator and then is circulated back to the front of the ash screw in a closed loop circuit.

Multi-Cyclone (FIG 8.2)

The *Multi-cyclone* is the primary flue gas cleaning device. A purely mechanical device for the removal of solid particles from your gas stream. Forcing the flue gas through a set of centrifugal cones causes the separation of the larger particles, while allowing the clean gas to pass back up through the center of the Multi-cyclone tube.

FIG 8.2 Multi-Cyclone

